Notebook, N-02-02-10

This notebook was probably begun in the late 1890s, although the only dated entry is from 1902. All of the entries are by Edison. At the beginning of the book is a list of chemical compounds and their properties. Some of the compounds are indicated for possible use in squirted filaments or fluorescence experiments. The list also contains many references to Henry Watts's multivolume *Dictionary of Chemistry.* Another set of entries, bearing the title "Phenomenon of the Lamp," pertains to tests of incandescent lamps. Included are measurements of carbon buildup, along with notations regarding the amount of current running through the lamp wires, the duration of burning, and vacuum levels within the bulbs. Some of the experiments are on lamps with platinum or bamboo filaments. There are also entries labeled "Theory No. 1," in which Edison considers why certain lamps, including those with bamboo filaments, are breaking. In addition, there are several drawings of railroad cars, conveyor systems, and rock crushers relating either to the ore milling plant at Ogden, New Jersey, or to the cement plant at Stewartsville. The one dated entry is from November 1902 and involves chemical solutions for storage batteries. The pages are unnumbered, and several pages have been removed from the book. Approximately 100 pages have been used.

C_{12} H_{10} O_2
144 10 32 — 186 N-02-02-10

C_{24} – H_{20} N_4

288 20 56

C 30 H 25 N_5
360 25 70

24
12
48
24
288

12
30
360

14
1
70

360
25
70
455

186 / 146000 (787
1488
1388
1395
455 / 360000 (793
3185
4150
3995
1550

288
30
576
364

12
30
360

364 / 2880000 (791
2548
3320
3276
6840
1554
1113

364 / 2500000 (6875
2184
3160
364 / 1560000 (4291
1400
1920
1400
520

791
68
1554
1011.3

791
68
1554
9519

N-02-02-12

part 2nd 3 sep.

Gaultheria Oil secondary
Bass of an oil in item –
brown amorph bodies on
oxidising Nitric a

Selenium amorph
Hydrochlorate "

Gluconic acid – Barium salt
gummy

Glyceric Thioaldehyde
waxy mp 80 C

glycerin 2 pts heated for some time
at 120 when phenol 2 pts
4-Selenol 3 pts, ammon darks
Red Color struck mass 0.02

do in aq then HCl throws down a colouring matter.

~~Chloro bromhydrin~~

Mercurothioglycollic acid
see glycollic acid
Pb salt amorph Hg salt do

Cuprosothioglycollic acid
amorph compounds

Phenyl-Thioglycollic acid
Pb salt amorph hardens
mp 60. Cu salt amorph
Chromic do.

glycosamine
black amorphous

glycyrrhizan amorph

glyoxaline
glyoxaline sulphate + KO nitrile
or Hydrochlorate + aq O heated
long time salts of fruit
amorph.

Tribromoglyoxalinic acid
with Ferrocyanic Hydrocyanic etc
the only known organic ~~acid~~
~~not~~ acid not containing
Oxygen

glyoxyl-Carbamide
silver salt amorph

glyoxylic acid gummy

Most graphites are
Magnetic

Dichloroguanamidine
DWM

Methylguanamine - with
phosphotungstic, ppt from dilute Sol
by NH3 to amorphous

See Diphenyl-guanidine Hg

Tetraphenyl-guanidine –
KO Chromate produces pp amorph

Dicyanodiethyl-guanidine fits

gun cotton dis in boiling Sol
of Sodium Stannate, +
Cellulose pp by adding HCl.

Heptoic acid KO normal
Salt amorph NaSalt a
jelly. See table 1023

Hesperidene see

Hexchlorethane, see -

Homocreatine DWM perhaps

See Humic acid CP - 1043.4
2nd pt 3rd Sup

Diazoxybenzoic acid (dehydro?)
gives ~~with~~ white precip. of a
humus Acid - I tried them but
didn't work well -
See under Humus acids

Tolyl-hydantoic Acid
DWM -

Thiohydantoic acid DWM

Phenyl-diethylazonium bromide
DWM

Phenyl-hydrazine Phenyl-Thiocarbazide
by slow heating DWM at 75-C

See Diphenyl-Thiocarbazide —

Diphenyl-Thiosemicarbazide
like nearly all derivatives of
phenylhydrazine are highly
soluble by fraction

Hydrobenzamide — from the
Cochine (alcohol) is slowly attacked by ~~alcohol~~
alcoholic KO in air the
decomposition goes off bright
shows at X.10C & strongest at
65.0 Lumsden Cameron and
1863 2nd pt 3rd Series

See p 1066 - 4 line - 2nd pt 3rd Sup

Indolene - resin

Isatin

Amido derivatives of Isatin - with NH_3 sealed tube - a Resin

Bromo - imido - di isatin. amorph powder.

Amaric acid Resin - colorless semi fluid at 100 C

Bromsub - Ethylisopropyl Ketone with Sodium hot - 1130 middle of prop 2nd pt 3rd Sup

Suberone dibillahen of suberic acid leaves tarry mass 0.75

~~Dan~~ Kino Red

Rosinol

Ethylene Lactic acid Zinc Salt
brilliant [illegible]

Laurocerasin - amorph

Lepidin - Dichlorlepedin etc
amorph - Oxylepidin - Resin
etc see article on derivatives
of Lepedin - quite many Resins

~~Trazofenecamfric Chlorid~~

Amidocaproic anhydr. Le
white amorphous

Levulinic acid Barium Salt
gummy

Lotur bark contains 3 alkaloids,
one Lotusine, in dilute acids soluble,
fluorescence brighter than Quinine sulphate
Tannic amorph & phosphotungstate of
Lotusine amorph — the other
2 alkaloids also give some amorph
salts

Malic acid — alkali salts of
Inactive Malic acid amorph.

All the salts of Isomalic acid
are amorph

Dihydroxymaleic acid
Calcium salt amorph

Mannite — or manital
from product, heating 3
hours with water

Malaconic acid – see

Melissic acid – ethyl f melissate
waxy mass m.p. 73°.

Mercuric Iodate
amorph.

Methacrylic acid in
fuming hydrobromic acid gives
amorph. mass

in Red root underlay fine tar
left in retorts. Messrs
Tilloy Delaunay & Courrières
France and formerly
See p 1305 Methylacrylic
2nd pt 3rd Sup

Methyl-isobutyl-glyceric acid
gives gummy anhydrides

Benzoyl-morphine amorph

Tetraethyl-diosdemic amorph

Diacetyl-codeine, Ethiodide
gives - see Morphine

Dibutyryl-codeine amorph

Sec - Myricyl alcohol
good

Myricyl-Hydrocarbinate
perfectly amorph wax - mp 94

Nitronaphthol black
Resin

Hydroxy-a-naphthaquinone
~~Sub~~ black sub

Nitrohydroxy-a-naphthaquinone
See tannic humic acids 1368

Narceine, amorph. N bases
with dilute acid to [illegible] is a
base or amorph & form amorph salts

For Schemmy Ni in pyrolites
1 mole see Nickel 1389
2nd pl 3rd Step

Nitrosacetanilide see filts

Octoic Acids Lead acetate
& manganese neutral give
amorph pp

Isodiyl-phosphine - wax

Oenanthylic acid v normal
Heptoic acid see

part relatively to Amido-Oenanthylic acid - DUM good

Animal oils turned brown by Chlorine -

See Oxidation - oils Volatile especially Turpentine black sub -

Nitro-oxi-cinol heated slowly DUM -

Vapor Tabroside osmium deposits Osmium on filament Easily

See p 1460 3rd sup Amides give amorph pp with heavy metals

Oxycumarin
DCVM

Oxycaproic acid aq Zn Cd
+Ba salts amorph

Oxypropylbenzoic acid
Cu Pb salts amorph

Oxyuvitic acid DCVM

Parabanic acid DCVM

Nitromethane, aq HNO_3
decolors + lignin soon
darkens on boiling
not See Nitropentane
(with a salt might be squeezed
+ then put in HNO_3)

Phenol Ethers —
O-Vinylpanisil trans Vibrin

Amidophenols. when on the amidophenol treated with bleaching powder or better KO ferricyanide an amorphous body obtained.

Triamidophenol - see
Bromodichromazin DRM 900
Bromodichromazin
DRM Chem 100. 1523 3rd

~~Acetyl Prot~~

Nitro phenol-turns ~~brown~~ black turns red. See article several things there some amph things -

Methyl-cymene sulphonic acid
Barm salt amph

Phenylacetic acid salts
mostly amph

Phenyl-Ketones passes
Chlorine black mass - 1565

Phenol-phthaleïn amph
Compounding above with Phenol -
amph - may be good for

Fluorescein heated Na hydrate
+ Zinc dust. sal becomes
Calcium - et acetic acid &
shaking with Ether etc
dissolves & dries upto Immiscible

Monoresorcinol-phthalein -
DUM slowly
Fluorescein may be good base

Orcinol-phthalein -
good fits. Evidently
the phthaleins can be manipulated
as a fits base can be organized

Thiolrephthalic acid DUM
Terephthalic aldehyde -
on mixing it Alcoh Sol with
Alcoholic sol KOH
amorph mp 177

phthalide converted by
Na amalgam into homyrmes

Pimelic acid heated with
Bromine + water amorph products

Podocarpic acid MP 187
resolidified to amorphous
glass

a-Dichlorpropionitril -
action chlorine on propionitrile
brown amorph products

Cyanopropionic acid
amorph brittle Sulfur 10%
KO Salt Trans solid. Magnesium
Salt gelly

27) 120000 (444
108
120
108
120
108
120

27) 140000 (5.18
135
50
27
230

27) 100000 (3.7
81
190

Pseudaconitine + allied bases
heating produces a sub which
forms amorph salts.

Pseudaconine salt all amorph

Dibenzoyl-apopseudaconine
amorph

Acetylapoaconitine all salts
amorph

Hydroxydoxbic acid 1703 3.0
Ba Ca Cd salt amorph

Pyroracemic Mononitrobenzide —
see Nitropyroracemic Cd benzide
DUM.

See article 1720 action heat on pyruvic - DWM good

~~Unsymmetrical~~

glutamic acid - mp 73 clear amorph - 1723

Triacetoquercital, amorph. from do pentacetoquercital. 1732

Chloromedoquinone - readily decomp by KOH hydrate or strong H_2SO_4 - humus -

Nitranilic acid DWM 1741

Colophthalin — several important reactions on Colophony fits ! ! !
1746 3rd

Resorcenol — paragraph ?
p 1747. fits!
& 9. important!

Dinitrosoresorcenol salts amorph

Diethyl-resorcyl-Aldehyde
Pb salt amorph
Resorcenyl oxide amorph
1753

Diresorcinyl-dioxide -
amorph

Hydrocyanorosanin
D-WM - 1762

Corallin - 2 bodies thereof
amorph - 1764 3rd

Alcoholic Sal Santonin
Exposed sunlight. amorph
Resinous sub formed

1778 — Something can be done
with this

Sebacic acid Ca salt amorph
Hg salt do

Sebic Ether Methyl Sebate Wax
Mp 38 but is hard & brittle.

Silico benzoic anhydride dis ether
+ remains on Evap trans.
Cover for fits

See Silicis Salicylic acid —

Sinistrin Amorph

Staphisagrine Amorph
1826

Strychnine nelm Nitrica
Amorph Gordy

Sulphalkylacetic acids
See article Many Salts Amorph
1841

Sulphobutyric acid
Pb salt amorph

p 1859 - XVI pp Hydroxyl di —
naphthylazensulphonic acid
W-COM lines very different
Combustible Carbon

Tetracetyl-Coniferin -
Trans. Mass nicoolin

Tetrahydroxybenzthione, amorph
brittle Solid resembling
Colophony

Theobengaldehyde –
amorph Eosynate

Thymohydroxyacrine acid
amorph 1968

Dinitrotoluene treated
with Sodium amalgam
yields black amorph mass
1994 – 2

Bromoparatoluidine-Metasulphonic
DLVIII –

Dibromorthotoluidine-parasulphonic
DLVIII 2021

Orthomonoethylarsenic acid
XXVIII arsenic monoethyl
ic acid Z031

Hydrochloride of Dinaphthylene-diamine
Violet aniline.

On formation of black liquid resembling
Ulmic sub on electrolysis
of 5% SO_4 Mg with Platinum
Plate anode gas at Carbon
Millot, Compt Rend - XC 611
Chem Soc Journal XXXVIII 482

Veratrum alkaloids

p. 2099 - Lot amorph & Vanish

Zinc Xylidate exhibits more strikingly more than any known salt property of dissolving more in cold than hot water at 0. C. dis 30 parts at 100 C only 0.075

End of 2nd part 3rd Sup

Now part 1 of 3rd Sup.

See Aniline blacks p 89 3rd Sup

B-Dinitro-anthraquinone
See reactions which give blacks
amorph sub. poly Diam —

Meladinitrobenzene - reactions
give black subs — good
Second edition 3rd 175

Azobenzene violet Antiny
Friedlaender - black amorph
Dabil — 212 p 3rd
Metallic looking

Melamidobenzenesulphonic acid
See reactions - Diam

Diamidobenzenesulphonic acid
DWM

Dibromomdamidobenzenesulphonic acid DWM-

Amidoparadibromobenzenesulphonic acid
DWM

Tribromomonamidobenzenesulphonic acid
DWM

Tribromomelamidobenzensulphonic acid
DWM

Tetrabromamidobenzenesulphonic acid
DWM.

233-234-4 more on 235—

See amide last line p 243 Dunn
244 – top line –
See 245 – bottom 3 lines Dunn

See 248 – Chloride – Dunn
See table 257
all above Sulphonic acids
+ appear elegant Gases
to work with.

Benzoic acid – Benzoic or Salicylic
acid – with glacial or sulphuric acid
gently heated – black sub
See – 259

Azoxybenzoic See whole article
271-5- 3rd

upto p 293 —
pt 1 3rd Sup

9 lines room to finish
pt 1 — go to 2nd Sup

Phenomenon of the Lamp.

Electrical Carrying —
Lamp brot up very high on pump so as to
break in few minutes ~~if pos from~~
~~right~~ always breaks 1/4 inch from
end P clamp, ~~[illegible]~~
~~in fil at breaks~~ this with Lampblack
fil — sometimes it does but it breaks
at some point just before it end —
are pbly due to Carbon being more porous
& giving more Carbon gas —

Lamps which break thus very only
blacken globe below break except on
side not breaking when blackening
is little higher pbly because don't
go in straight line —

Carbons of Lampblack with larger
binder have very little life —
black globe very much —
with same stuff increased pressure
in making filament increases
life enormously & diminishes blacken

Electrical Carrying current
must strong —
Central wire connected to sounder
& P wire can work sounder —
no Current when Central wire
Connected to N wire —
Strength Current increase as
Cp increased, none at Red —
Current is variable as shewn by
unreliability of Cold Valt
indicator Experiments —
a pad of tin foil on outside
globe connected to gal &
other end to P wire gives
Continuous Current.
The Carrying Current dont go
around a Corner,

one test showed lamp having
burned 90 hours gave 17 c
& .54 amp. had Vac broken &
re exhausted, Cp still 17
but amp. .53 - this poss
shews residual gas was sufficient
accumulated to make a Current
of above value —

the platina wire Neg side
gets black in time where it
passes through glass seal —

Sometimes there are spots on
globes which are not blackened

A 16 cp lamp having apparently
good Vac upset down for
3 or 4 hours gave very dull
red apparently bad Vac.
it wont Vibrate —

C_{18} H_{15} N_3

216 15 42 — 273

C_{36} H_{27} N_5

432 27 70 529

216
15
42
273

12
18
96
12
21

36
12
72

36
43

273 | 216000 | 79.4
1911
1365
1230

529 | 432000 | 81.
4232
8480
5290
351

432
27
70
529

C_8 H_{11} N_1

$C_8H_{11}N_1$ 0 96 11 14 — 121

96 11

11
14

121 | 96000 | 71.
8470
1310
9

26
12
52

26
312
328

328 | 312000 | 95.1.
2952
1680
1640
40

40 — | 360,00 | 9

12
30
360
60
420

420 | 360000 | 85
3360
2400

26 | 24000 | 92.3
234
60
52
80

152 | 1200 |

79 | 6000 | 75
553
470
395
75

$C_{20}H_{10}O_7$

240 10 112

12
20
24

16
7
112

240
112
10
362 (240000 (66
34

32
12
64
32
34
22
06
4 (3434000 (9455
3634
1040
1016
1620
12

plenty of Hydrogen in Lamp free of other gases gives on a Copper Clamp Acetylide Copper —

filo which oxidizes in flame in 7 sec are sometimes better in Cp & longer life than those which do not oxidize in 7s sections, hence this is no Criterion

A lamp which after burning 90 hours was reduced from 38 Cp to 17 gave when put in new globe 22 Cp - showing loss by blackening

Bringing a lamp up high on pumps makes fil difficult to oxidize when put in flame it also prevents too great drop Cp - & probably lengthens life although latter not certain ~~as life~~

Some Lamps have long life others short, Lamps caught before they break shows bright spot + under micro ~~note~~ gradual reduction in size of fil leading to spot is seen all rough. — ~~Hence~~ This is due to electrical Carrying Concentrated thereon which with residual gases rapidly do the work which is accelerated by diminution of surface R + rapid rise of Temperature

What started it at this particular point is unknown — porosity — peculiarity of surface or original diminished diameter of higher R of which the spot was the apex

No matter how a lamp is made, washed with H, Cl, N or other gases, globe heated Clamp heated the spectroscope shows CO + Hg spectrum above all others,

Bamboo filo have 3 times the life if after half Chgd they are dipped in asphalt & finally Chgd —

Yet this process failed after a while from Causes unknown — matter of Exputg Conduct got it broke & it was abandoned

The only change that could have accounted for it was that the Bamboo was shipped from Japan from a different source or was different quality or that changes in pumps wkg defit.

Low Vac with hanging blue m p clamp globe dark black clamp get sooty, life poor, with little higher Vac one side fil black other side silvery —

Too much clamps wire or surface diminishes life of lamp —

Arc form easily if sparking Coil flashes are used around a Lamp =

With Bamboo, 10 cp filo never lasted as long as 16

Life so poor on ZnCl cellulose Cbns when 200 Volts — ~~a~~ 9 wanted of bad of. Cut to 100 Volts 8 Cp —

Upton remembers when Lamps were coming bad, we washed the globes results were many good then some change look place and we couldnt get good results although we washed them —

Duplicate filo one set sent to Lamp face for exhaustion one at Lab — Lab was generally 50% + sometimes twice as good, sometimes Lamp face was best,

Reg L factory heated filo shed on other places than where broke — dark spots as of Carbon are stopped there for a while then change to another spot

also notice gradual taper towards break - 1/2 inch -

Carbon pitted (+) at points from the break where flash was bright were round pits just as if a disc of flash carbon flew out,

Afterwards lamps must give high final altho'

are comes out in Vacuum

Notice most of 50 V Lamps used for my carbons ok are but off platina wire -

Experts show outside of blackening of globe most change CP due to change R in Carbon -

1/4 of 1/1000 surface rendered non conducting would account for drop CP by change R -

43 did not blacken globe yet there was great change Res carbon - is it internal, fil was black but where did carbon go?

When globe is blue & blue halo goes from clamps blue commences flicker then disappears - now this could

only take place by higher Vacuum — could not be heat of globe as change sometimes takes hours. Cant be H_2 as I understand it occurs on Mechanical pumps.

Chlorine Vapor run into Lamp stops Glue = Glue gives Space of H_2 & CO,

If higher Vac gas must be absorbed somehow,

The black on globes can be loosened by hot HCl it comes off in flaps — as HCl does it beat, what is reason — is this stuff Carbon

In CO_2 a fil full of ash nearly all of it goes away in CO_2 furnace this can only take place after red heat, hence owing to Carbon — If lamp furnace is not sufficient to reduce the ash it goes into fil in Lamps & if worked high Cp. CO will be produced if K then CO & metallic K produced —

With ordinary run of Lamps there is no particular spot where they break as may break on P as on N side —

With Copper clamps no matter how dirty they are cleaned by reducing action of Carrying current, not only P but the negative as well -

A piece of Cocoanut shell Cbyd placed in Vac near loop took broke quickly near the Charcoal, pbly water

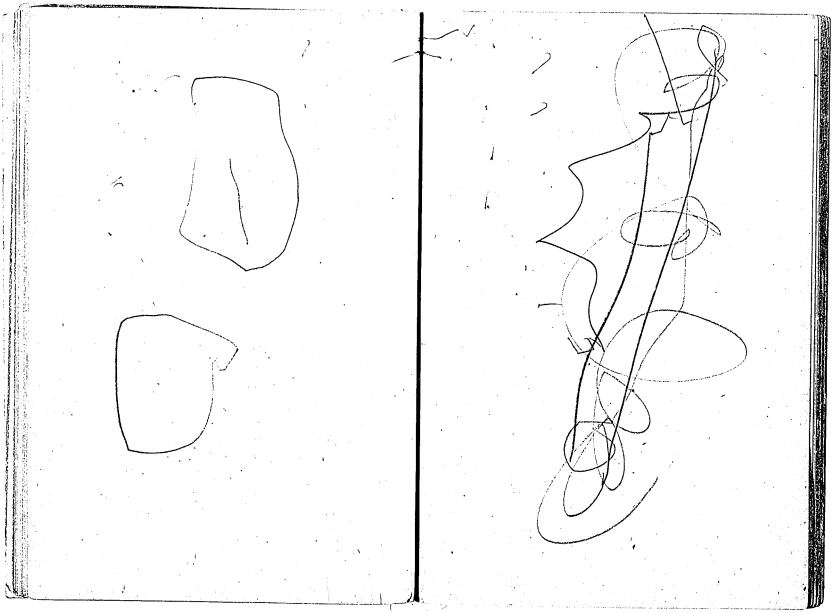
Glass globes have efflorescence pbly soda - or chrome lead - wash with hot HCl first pbly - then rinse distilled H_2O + then alcohol

When clamps get hot by bringing up Lamp. on pump it breaks the tube from decomposing clamp material

make mixture of pbqo with 33 + dipi

As lamps having blue in globe change aflimmhile after flicker it may be Carbon deposited in glass may absorb the gases

Air must adhere to Hg of pumps ~~then~~ for there is a constant bringing in of air -



The more solvency a fuel is
an oxidation the better it
holds it Cp =

Nov 3rd 1902 Stamps & Bat

Mix 2 graphite, 6 Ni hydrate &
2 H_2O — use for deplgr
in Stamps —

Try 3 graphite 7 very finely
Syrian asphalt, Deplgr for
Batting Stamps —

Patent acting upon the pure
hard Rubber by nascent H_2O_2
to Eliminate all the Sulphur
that it will take out so
it can be used as
Separators in Ni Fe Stamps

Nov 3rd 1902 Storge Betty

2nd Sup

See acetanilide — action of heating with Salicylic, sal KO — HCl then dilute brown flox spongy stuff - strong HCl decomp ct = p 9

Bromacetone dark viscid mass — oily prts
Brown suit amorph —
p 13

See acetone acid under acetone 15 pages
prts —

Tetrachloro-diacetone cyanhydrin
action Cy K in symmetrical Dichloroacetone
block sub - 16 - "

acetyl - prts 18

Achillein — p 21 - brittle glassy bromine
sub —

Napelline p 23 Eluotrine

acridine – KOBichromate + SO4 from sub 25

agaric opium sugar – agaricic acid DWM – 30

Aldehyde – secretion with phenol fits 37

Aldol Viscid mass 39

Alizarin = Isalizarin probably good for fits – 40

Aconitine p 48 – also Delphenine fits

Allanic acid salm H_2NO_3 on

Allantoin DWM good 43+44

Allantoic acid hard – trans amorphous

Barbaloin - 52 fcts

Amarie acid. Ba Pb Ag salts ainmph 55

Most powerful oxdg - sal

Nitric or Rochlorate see p 69 - anthracen is completed oxdg

Bromine in any good oxdizer see p 70

See aniline blacks 75 fcts

See Sulphoacids of aniline blue fcts - p 77

Anthracene Orange 3rd paragraph 86

Anthrachrysone fused with KO gives large quantity humus sub 86

exists page 91

Theory No 1

Breakage of filament is due to quality of surface, lack of smoothness or density or unequal amount of temperature at surface due to unhomog of Carbon, + Carrying does the rest, (10) Broke by Carrying

For - 1/4 inch of some treated Carbons are worn down by carrying at distances from the point where they break —

2nd all the porous or Lamplik file had no life —

3rd Hard pressed Lamplik Cbns had more life —

8 Lamps 54 + 42 put up high all broke 1/4 inch from position Terminal by Carrying

Thus

Theory 1 Continued

4th old bamboo lamps had life more than quadrupled by giving a 1/4/1000 of Asphaltic surface –

6th Treated Carbons held Cp better as Carrying is diminished,

all breaks have generally a long taper part showing it could be a flaw or crack as it would extend so far

7th

8th It is known that resistance to high static Carrying is diminished by smoothness + increased by points at surface of the

9th In treated lamps notice eating away of Carbon under treated Carbon –

10th working lamps high in pressure diminished oxidimetrically in flame, also the life was increased as density must have been increased

11. a fine point on surface from which carrying goes from Con reach any temperature probably up to Volatilization of C today nothing of Combustion of CO hence it may start at that point + continue until it so enlarged that all the Carrying prevents therefrom, + fils break –

Theory 1 for

12 Lamps having Large terminals or extra center terminal if large surfaces have no life carrying measured —

13. filaments from fibres not dense have no life =

14 Large Cell fibres like Bamboo although dense have poor life — proper Carbon have very poor life —

Theory 1 against

~~Again~~ Heavy flashing has very little more life although acting at lower temperature —

Some bamboo fibs, having asphalting surface gave several times the life of other fibs having same surface.

10 cp has less life than 16 —

Known opens — lamps sometimes break at the open at other times not.

In Low Vac when one side of Carbon is bright the other black the break occurs at any place —

Theory 1 against

Crutes Carbon solid glassy deposit deposited one had no life —

No 4 fil was poor surface — yet gave good life —

No 8 surface dull not glassy

25)96(3.8
75
210

18
36
36
216

23
46
46
276

14
56
70

70
27
50
148

36
72
72
432

26
52
52
312

53)276(5.2
265
110

47)312(6.6
282
300

57)216(3.8
171
450

24
48
48
288

21)72(3.4
63
90

148)432(3
444

76)228(3
228
60

14
56
56
784

42)144(3.4
126
180

C	others	Lunt
96	25	3.8
276	53	5.2
312	47	6.6
72	21	3.4
216	57	3.8
432	148	3
144	42	3.4
288	76	3
360	95	3
216	108	2

Analysis Rock

Silica	7.63
Alumina	1.99
Lime	0.04
Magnesia	0.02

Silica	7.63
Alumina	3.08
Magnesia	0.34
Lime	4.09
Magnesia	0.27
Carbonate	0.06
Water	0.09

766. Orthoclase

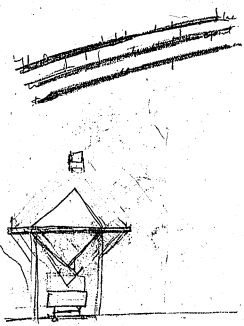
Silica 64.16 Alumina 18.5

Potash 16.9

3.08
4.09
27
7.44

753 | 6453 | 8.46
6.03
3.50

305 | 1853 | 5
31.50
15.25
9.25
9.25
7.25
2.31



100
200
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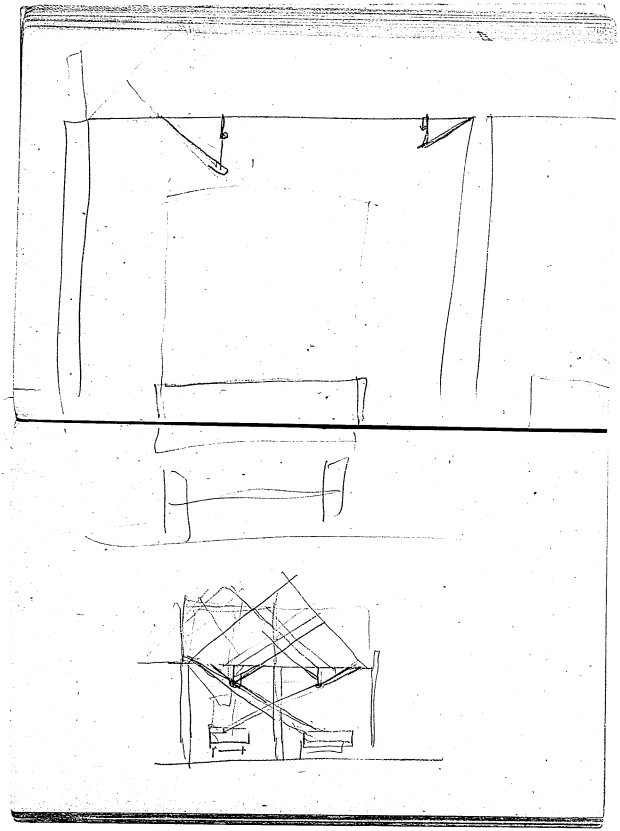
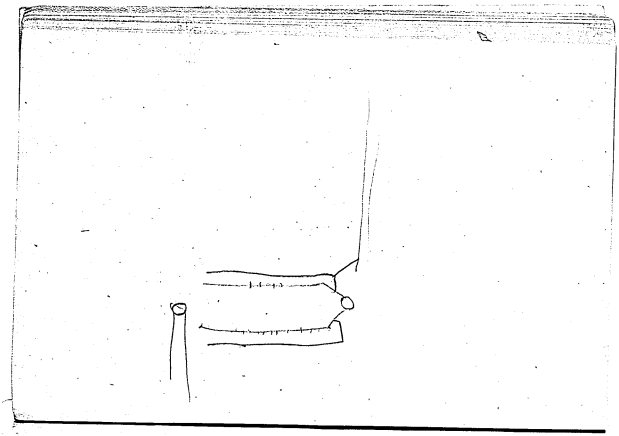
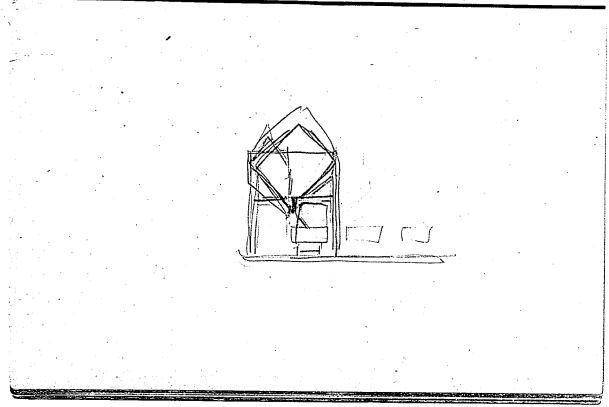






Aniline. 185° BP
Papaverine. 260 BP
~~Phenylthiourea~~
~~Diamidotolyguan~~

Amidobenzonitril —	mp 52	BP 290
Diamidotoluene	" 65 —	270
Amidobenzylcyanide	46	312
phenylpropiononitril	liq —	253
Monophthylamine	"	293
a-Naphthylacetonitril	"	above 300
B Diamidodiphenyl	"	363
Dipocotine, papaverine,	"	320
Ditolylamine	"	319
Trioctylamine	"	370

~~Bromnaphthalene~~ in Vac
~~3 mm mbtt~~ at 110 R —

Vapor tension.

Benzaldehyde at 94
has vap tens in Vac of 75 mm —
(is a CHO Compound)

Aniline — at 100 has Vapor of 58 mm

Naphthalene at 100 17.

Tetrachl Carbon at 100 1467 mm
— Bromide " 50 mm
Bromnaphthalene at 100 3.6 mm
Xylidine (CHN) at 100 15 —
Quinoline CHN 106 10
Phosphorus 100 3.44
Antimony Triiodide at 153 — 1 mm
SbI_3
Iodine at 100 50 m

Carbon Tetrabromide at 100 C Br4 170 mm.

56300 - mill -
15000 - 1st Bryan
8000 -
5000 -
84300
2000
2274 / 86300 (38.13 -
67200
19100
17920
1180

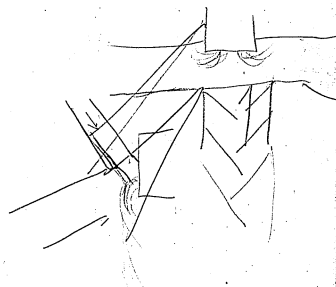
39
330
117
117
2,8,70

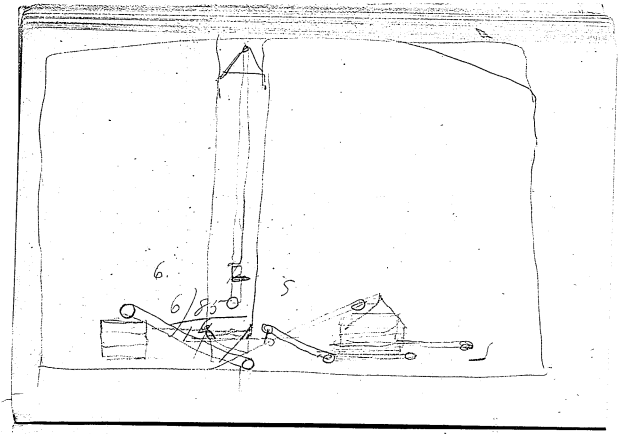
3c

12

84
3
252 / 310
156 00

Commencement part 2 3rd Sup

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6/85
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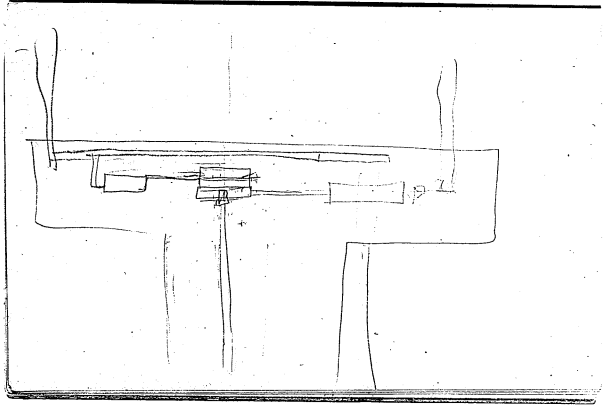

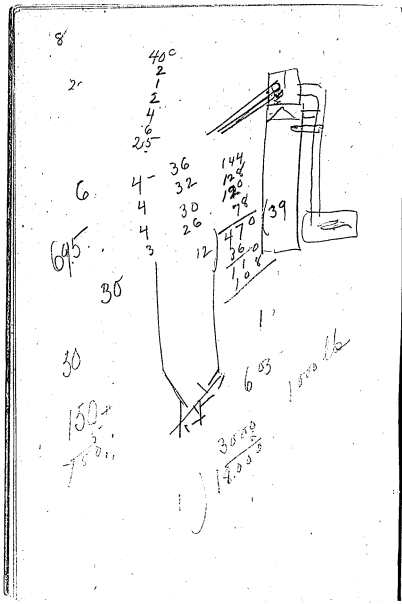

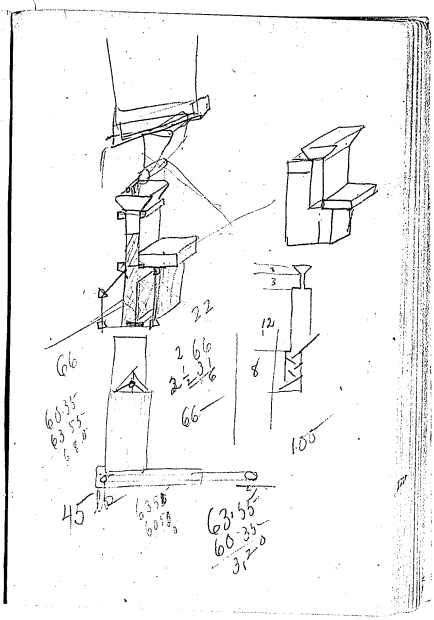

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2 bottom - 8
2 to 201 - 13
110 -
Roll -
Little Gem
w/ Conveyor 40
Return - 4
Crosts 14 in - 3
to tipper - 4
Return
to Elevator 3
from Roll 2
50 Return 3
50 weight to
175 to end - 4
Roll feed - 10
Cleaner 10
Inclined Dump 25
Screening 10
Rolls 167
Blower Bag 10
Elevator 6
Screening

4 1
4 6
4 3 6
25
4 6 0 -
25 0 0 -
1 0 0 -
2 0 0 -
8 0 0 -

805 -

36
to
144
14
to
7
7
to
2
2
to
1/2
500
to
1000,
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to
17

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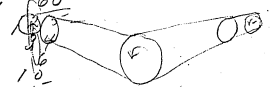

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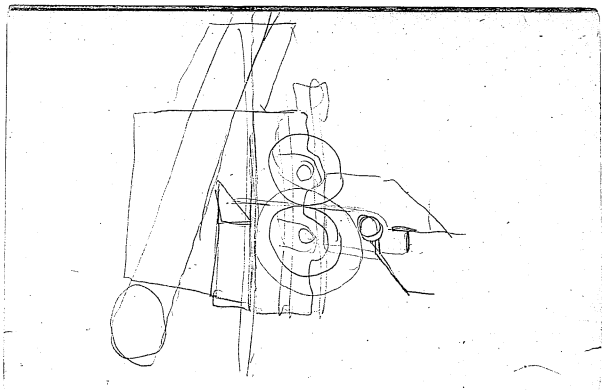

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6 of 4
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4 of 3
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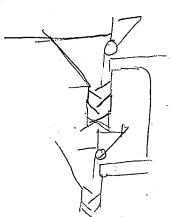

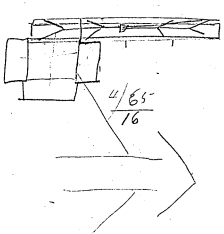

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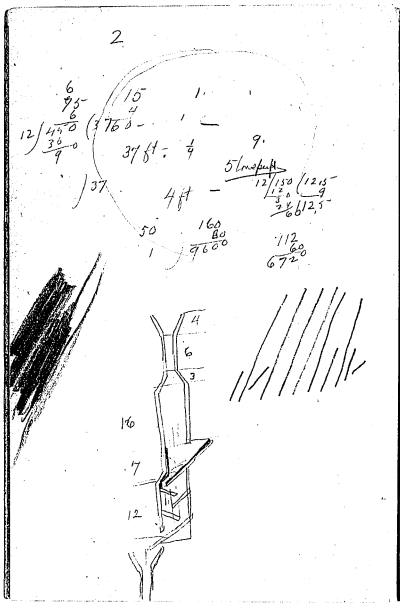

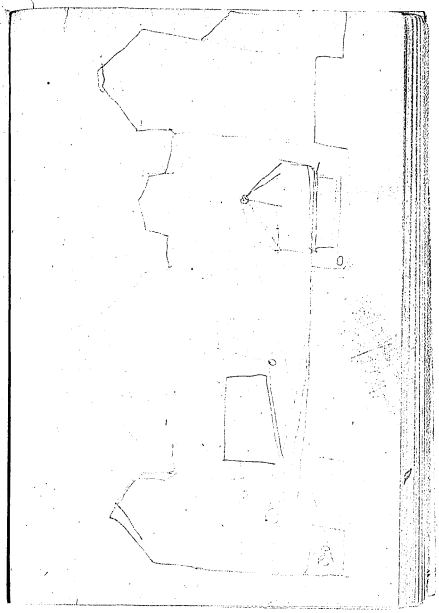

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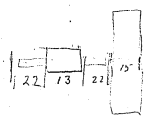

37

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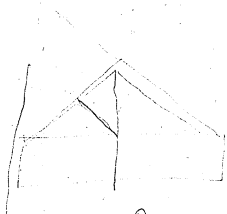

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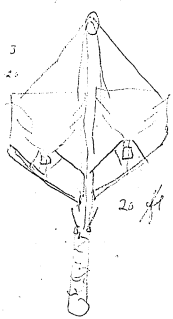

OK

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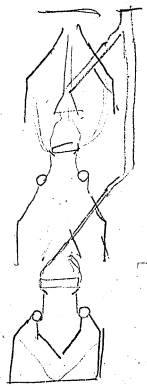

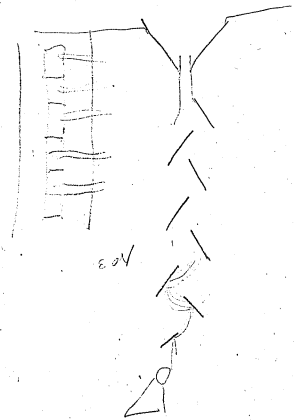

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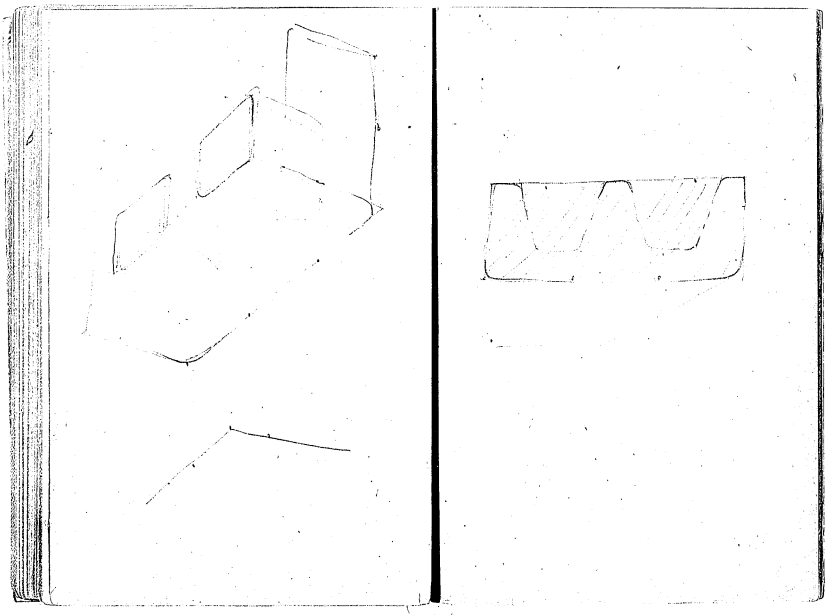

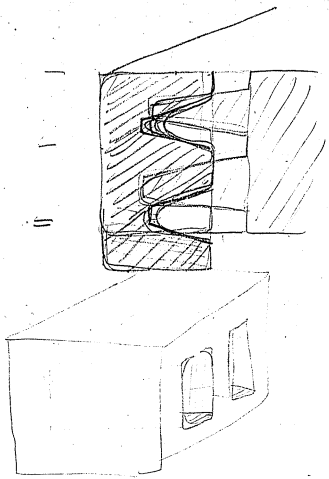

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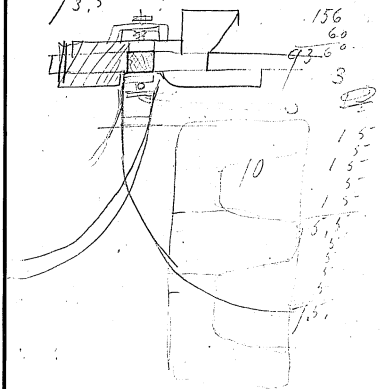

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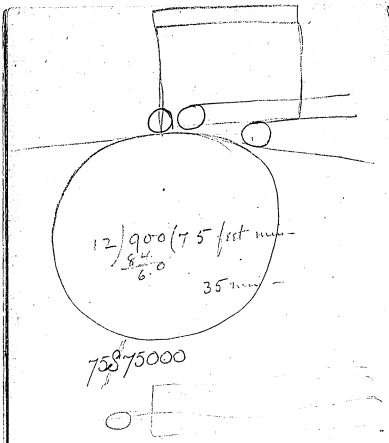
12/900/75 first mm
35 mm
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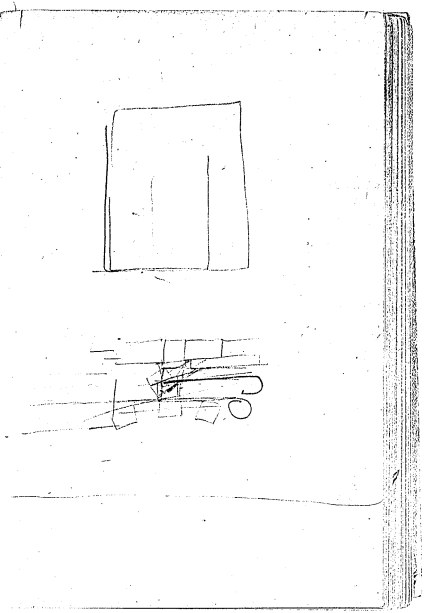

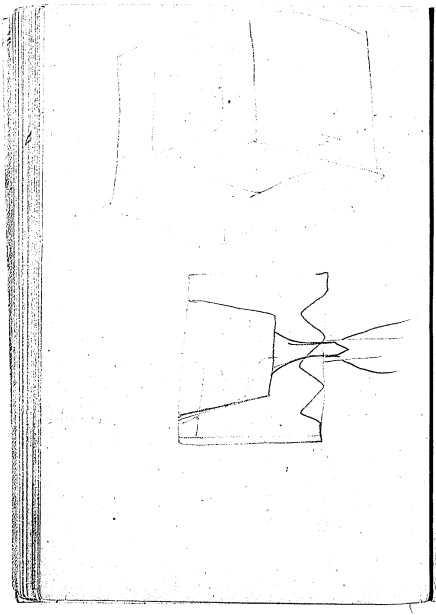

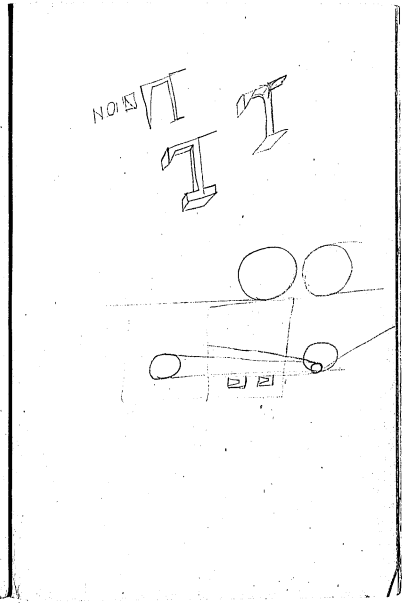
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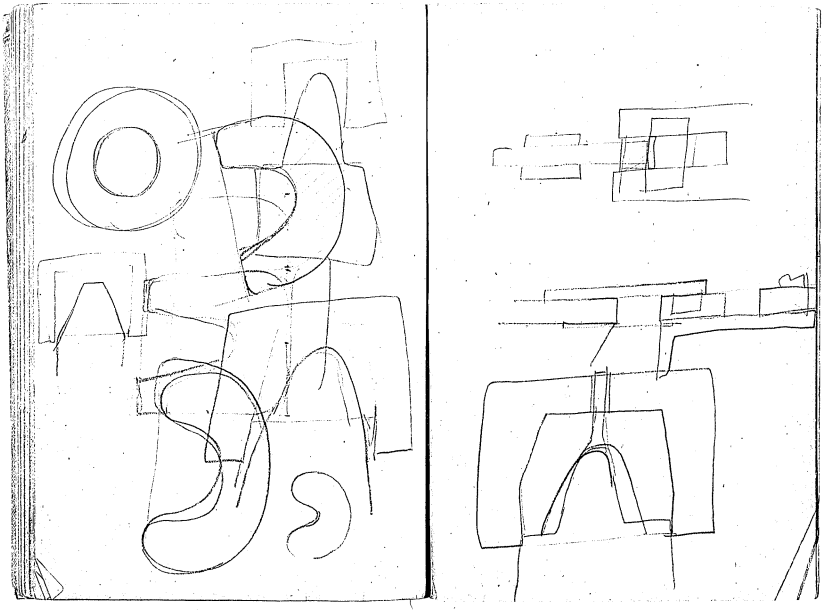

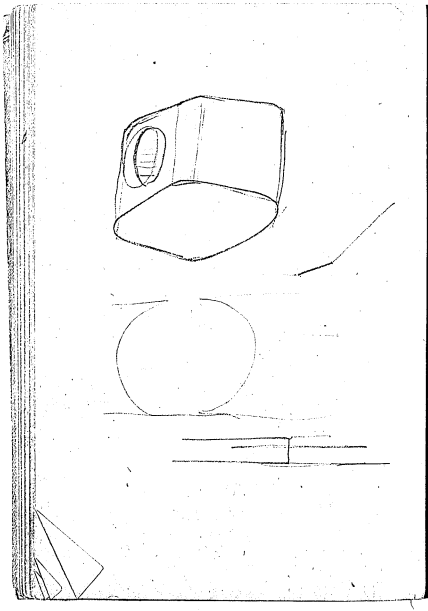

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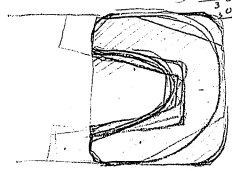

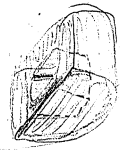

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